

Response
Serial No. 10/673,565
Attorney Docket No. 031731

REMARKS

Claims 1-17 are pending in the present application and are rejected. Claims 1, 8, 10 and 11 are herein amended. Claims 2, 4, 6, 9, 13-14 and 16-17 are herein canceled.

Claim Rejections under 35 U.S.C. §102

Claims 1, 3, 5, 7 and 14 are rejected under 35 U.S.C. §102(e) as being anticipated by Nitta (U.S. Patent No. 6,582,998 B1).

Applicant herein amends claims 1, 8, 10, 11 and cancels claims 2, 4, 6, 9, 13, 14, 16 and 17. Subsequently, Applicant respectfully disagrees with the rejection, because not all of the claimed limitations are taught or suggested by the cited reference.

Amended claim 1 now includes the limitations of claim 2, which is not rejected under §102. Therefore, amended claim 1 and claims 3, 5 and 7, which directly or indirectly depend from amended claim 1 should no longer be rejected under 35 U.S.C. §102(e) as being anticipated by Nitta.

Claim Rejections under 35 U.S.C. §103

Claims 2, 4, 6, 8-13 and 15-17 are rejected under 35 U.S.C. §103(a) as being unpatentable over Nitta in view of Yamazaki (U.S. Patent No. 4,727,044).

Claims 1, 8, 10 and 11 are herein amended. Claim 2 and claims 4, 6, 9, 13, 16 directly or indirectly dependent from claim 2, and claim 17 are herein canceled.

Amended claim 1 includes the technical feature of claim 2, and Applicant submits that amended claim 1 and its dependent claims cannot be rejected under 35 U.S.C. §103(a) as being

Response
Serial No. 10/673,565
Attorney Docket No. 031731

unpatentable over Nitta in view of Yamazaki, because each limitation of the claims is not suggested by the cited combination of references.

Applicant notes that claim 1 includes the claimed limitation that the chemical oxide film, which prevents the dopant implanted in the doped region from diffusing outside the semiconductor substrate, is formed simultaneously with the removal of the resist film by the atmosphere for removing the resist film in the step of removing the resist film used as a mask in the step of implanting the dopant. This limitation causes suppression of the generation of the bird's beaks while suppressing the out-diffusion of the dopant in the activation of dopant by thermal processing, without complicating the steps of the method.

Conversely, Nitta discloses that thermal processing is performed **after** a chemical oxide film is formed on a surface of the region implanted with dopant. Nitta neither discloses nor suggests that the chemical oxide film, which prevents the dopant implanted in the doped region from diffusing outside the semiconductor substrate, is formed in the same step as the removal of the resist film by the atmosphere or the chemical liquid for removing the resist film in the step of removing the resist film used as a mask in the step of implanting the dopant.

Applicant notes that Yamazaki discloses that a resist film is used as a mask in the step of implanting the dopant. However, Yamazaki also neither discloses nor suggests that the chemical oxide film, which prevents the dopant implanted in the doped region from diffusing outside the semiconductor substrate, is formed in the same step as the removal of the resist film by the atmosphere or the chemical liquid for removing the resist film in the step of removing the resist film used as a mask in the step of implanting the dopant.

Response
Serial No. 10/673,565
Attorney Docket No. 031731

The Examiner asserts that the doped region would be inherently oxidized when the substrate is subjected to oxygen atmosphere or chemical liquid. However, Applicant notes that the ordinary step of removing the resist film used as a mask for implanting the dopant cannot form a chemical oxide film of a certain thickness enough to suppress the out diffusion of the dopant in the activation of dopant by thermal processing. Contrary to the ordinary step of removing the resist film, the step of removing the resist film in the present invention according to claim 1 is also for forming the chemical oxide film of a certain thickness enough to prevent the dopant implanted in the doped region from diffusing outside the semiconductor substrate.

Therefore, Applicant submits that even if Nitta were combined with Yamazaki, claim 1 would have been nonobvious to one of ordinary skill in the art at the time the invention was made.

Claims 3, 5, 7, 8, 10, 11, 12 and 15 are directly or indirectly dependent from claim 1, and as argued above, claim 1 would have been nonobvious to one of ordinary skill in the art at the time the invention was made as described above. Therefore, Applicant submits that the present invention according to these claims would have been nonobvious to one of ordinary skill in the art at the time the invention was made.

In view of the aforementioned amendments and accompanying remarks, Applicant submits that the claims, as herein amended, are in condition for allowance. Applicant requests such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney to arrange for an interview to expedite the disposition of this case.

Response
Serial No. 10/673,565
Attorney Docket No. 031731

If this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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